

ELECTRON MICROSCOPY UNIT

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WORK OF THE UNIT

The Electron Microscopy (EM) Unit, Mona has substantially achieved its goal for the 2007/2008 academic year in conducting some research and teaching, as well as in assisting Researchers and other Interest Groups to achieve their goals of obtaining results in and gaining a better understanding of optical and electron microscopy. Services and/or tuition in Transmission Electron Microscopy, Scanning Electron Microscopy, various forms of Optical Microscopy (OM) and Macro-Photography (MP) were provided.



Researchers on and off the Mona campus, Postgraduate-, and Undergraduate-students benefited from the EM Unit. Table 1 shows services that the EM Unit has provided throughout the academic year.

Tab. 1: Services provided by the EM Unit during the academic year 2007/2008

| Specimen | Technique | Institution |
|---|------------------------------|---------------------------------------|
| Cement, coal & soil | Digital OM | Dept. of Geography & Geology |
| Corals | MP | Dept. of Geography & Geology |
| Fungi | Digital OM (epifluorescence) | Dept. of Chemistry |
| Fungi | MP | Dept. of Life Sciences |
| Gambusia (fish) gills | Digital OM | Dept. of Life Sciences |
| Hepatopancreas (digestive tract of some animal species) | Digital OM | Dept. of Life Sciences |
| Limestone sections | Digital OM | Dept. of Geography & Geology |
| Phytoplankton | Digital OM | Dept. of Life Sciences |
| Rat islets of Langerhans | Digital OM | Dept. of Basic Med. Sci.-Pharmacology |

| | | |
|---------------------------------|--|--|
| Rat knee joint | Digital OM | Dept. of Basic Med. Sci.- Pharmacology |
| Rat pancreas | Digital OM | Dept. of Basic Med. Sci.- Pharmacology |
| Rat uterus and vagina | Digital OM | Dept. of Basic Med. Sci.- Pharmacology |
| Red mud & polymer composites | Digital OM | University of Technology |
| Rock sections | Digital OM (bright field, polarization) | Dept. of Geography & Geology; 5 different investigators from the Department |
| Sand stone sections | Digital OM (bright field, polarization) | Dept. of Geography & Geology |
| Turmeric rhizome | Digital OM | Biotechnology Centre |

A lecture and laboratory sessions focusing on Transmission Electron Microscopy of whole mounts and virus particles, were conducted with undergraduate students in the course “Virology” (BL38A) offered by the Department of Life Sciences. In a laboratory session, postgraduate students of the Department of Chemistry were introduced to polarization microscopy and electron diffraction (in the course ‘Research Methods, C60M’).

The EM Unit contributed to the Research Day of the Mona Campus by providing posters and exhibits and by manning a booth in the Assembly Hall. In November 2007, Dr. Wolf presented, over a two week period, four lectures at the University of Buenos Aires (Argentina) in Insect Cytogenetics and Insect Cell Biology. The EM Unit has collaborated with researchers abroad as indicated in Table 2.

Tab. 2 Collaborations with the EM Unit in the academic year 2007/2008

| Subject | Collaborator |
|--|--|
| Ciliates in tank bromeliads | Zoologist at the University of Salzburg (Austria) |
| Kinetics of spermatogenesis in lizards | Zoologist at Wittenberg College (USA) |

PUBLICATIONS

With a staff complement of two, the per capita publication = 1.5.

Refereed

- * Cawich, S.O., Gardner, M., Johnson, P., Shetty, R., **Wolf, K.W.** “The clinical significance of an elongated styloid process”. *The Internet Journal of Family Practice* 6,1,(2008), <http://www.ispub.com/ostia/index.php?xmlFilePath=journal/s/ijfp/vol6n1/styloid.xml>

Non-Refereed

- * **Wolf, K.W.** “Cytoskelett” in Taschenbuch Biologie, Biochemie Zellbiologie, Georg Thieme Verlag Stuttgart, New York, 2008, 443-471.
- * **Wolf, K.W.** “Zellteilung” in Taschenbuch Biologie, Biochemie Zellbiologie, Georg Thieme Verlag Stuttgart, New York, 2008, 508-530.

Targets

In the 2008/2009 academic year, the EM Unit aims to:

- Actively pursue joint venture projects that will assist in the acquisition of a new scanning electron microscope;
- Continue its involvement in teaching and research;
- Continue its core function of assistance to researchers and exposing interest groups to the benefits and techniques of electron microscopy.